



Dami Adebambo, PhD

Current Position
Health Scientist

Discipline Areas

- > General Toxicology
- > Metal Toxicology
- > In-Vitro & Alternative Methods
- > Risk Assessment

Years' Experience
5 Years

Joined Cardno
2020

Education

- > PhD, Biology, North Carolina State University, 2018
- > MEM, Environmental Toxicology, Duke University, 2011
- > BSc, Botany, University of Lagos, 2006

Summary of Experience

Dr. Dami Adebambo is a Health Scientist with Cardno ChemRisk, located in Pittsburgh, Pennsylvania. Her primary training and area of expertise include metal toxicology, reproductive and developmental toxicology, *in vitro* mammalian toxicity model development, pre-clinical drug development, data analysis, experimental design, and risk assessment.

Dr. Adebambo received her Bachelor's degree in Botany and Microbiology from University of Lagos, Nigeria where she began scientific research and completed a senior project investigating the utilization of endogenous fungal species in bioremediation of petroleum polluted waste sites. She then completed her Masters in Environmental Toxicology at Duke University where she continued to assess the toxicological impact of produced waste water from oil and gas operations and endocrine disrupting compounds. Following her masters, Dr. Adebambo obtained a PhD in Biology, with a focus in Toxicology, at North Carolina State University while performing most of her dissertation research at UNC Chapel Hill. Her dissertation work explored the reproductive and developmental toxicity of heavy metal exposure, specifically cadmium and arsenic, on preeclampsia using *in vitro* experimental models and cohort studies in human subjects. Her thesis work elucidated the toxic effects of heavy metal-induced oxidative stress and mitochondrial dysfunction in utero-placental tissues on pregnancy and fetal health.

As a postdoctoral researcher with the Center for Human Disease Modeling (CHDM) at Duke University, Dr. Adebambo utilized both *in-vitro* and *D. rerio* (zebrafish) experimental models to develop novel antisense oligonucleotide therapies for rare neurodevelopmental disorders. She also assessed drug delivery pharmacokinetics in order to determine optimal therapeutic doses through confocal imaging and serological assays. Additionally, she performed investigations into determining previously unidentified genetic variants that contribute to syndromic developmental disorders. She completed another postdoctoral fellowship at Cold Spring Harbor Laboratory, NY where she investigated the effect of aberrant inflammatory signaling in trisomy 21 (Down Syndrome) with the aim of therapeutic discovery.

Significant Projects

Toxicology

Investigated effects of cadmium and arsenic exposure on placentation pathways involved in the pathogenesis of preeclampsia.

Analyzed mitochondrial dysfunction and mitochondrial DNA alteration due to cadmium exposure in the placenta.

Generated CRISPR/Cas9-knockouts of oxidative response genes targeted by cadmium in placental trophoblast cells to simulate and characterize effects of cadmium exposure on placentation.

Characterized metal-induced toxicity on the placental genome via statistical analyses of RNAseq and genome-wide expression studies.

Evaluated the effect of arsenic exposure on differential glucocorticoid receptor (GR) methylation and expression of downstream target genes.

Drug Discovery and Pharmacokinetics

Designed a mutant-specific antisense oligonucleotide (ASO) targeting the missense variant implicated in the rare disorder — *PACS1* syndrome, with 80% efficiency.

Characterized drug delivery pharmacokinetics in order to determine optimal therapeutic doses through confocal imaging and protein quantification immunoassays.

Neurodevelopmental Genetics

Identified the effect of haploinsufficiency of the Sin3/HDAC corepressor complex member *SIN3B* on the pathogenesis of a syndromic intellectual disability disorder.

Investigated aberrant interferon-mediated immune-inflammatory signaling in trisomy 21 (Down syndrome) and other neurological trisomies.

Risk Assessment

Performed a toxicological risk assessment as part of a graduate-level practicum class on the impact of trichloroethylene (TCE) exposure from a contaminated, former dry cleaning site.

Evaluated potential health risks associated with exposure to other leachables and contaminants following repurposing of contaminated waste site.

Assessed the location of hazardous waste sites and risk of groundwater contamination for 20 counties in NC.

Professional Honors/Awards

- > National Institute for Environmental Health Sciences (NIEHS) Superfund Research Program (SRP) Trainee Fellowship, 2014 - 2018
- > NIEHS KC Donnelly Fellowship, 2017 - 2018
- > Foundation for Agromedicine and Toxicology Supplemental Scholarship Award, 2017
- > National Science Foundation (NSF) Advancing Science Travel Award , 2013 & 2017
- > Best Poster, Health Sciences at the NIEHS SRP Meeting, 2015
- > Nicholas School of the Environment, Duke University Merit Award, 2009 - 2011
- > University of Lagos Endowment Merit Scholarship, 2005 - 2006

Membership and Service to Professional Societies

- > Society of Toxicology: Metals, Mixtures, Molecular Biology and Systems Specialty Sections
 - Member of the Graduate Student Leadership Council, 2018 – 2019
 - Graduate Student Representative, Mixtures Specialty Section, 2018 – 2019
- > Genetics and Environmental Mutagenesis Society
- > Society for Environmental Toxicology and Chemistry

Publications

Peer-Reviewed Publications

- > Vasudevan A., Schukken K.M., Sausville E.L., Girish V., Adebambo O.A., Sheltzer J.M (2020). Aneuploidy as a promoter and suppressor of malignant growth. In Review at Nature Reviews Cancer
- > Latypova X., Vincent M., Molle A., Adebambo O.A, Forgeux C., Khan T., Caro A., Rosello M., Niyazov D., Lederer D., Deprez M., Capri Y., Kannu P., Tabet C., Levy J., Aten E., den Hollander N., Splitt M., Walia J., Immken LL., Stankiewicz P., McWalter K., Suchy S., Louie RJ., Bell S., Stevenson RE., Rousseau J., Willem C, Retiere C., Yang X., Campeau PM., Martinez F., Rosenfeld JA., Le Caignec C., Kury S., Mercier S., Moradkhani K., Conrad S., Besnard T., Cogne B., Katsanis N., Bézieau S., Pschmann J., Davis E.E and Isidor B. (2020). Haploinsufficiency of the Sin3/HDAC corepressor complex member *SIN3B* causes a syndromic intellectual disability and autism disorder. In Review at AJHG.
- > Adebambo O.A., Shea D. and Fry R.C (2018). Cadmium disrupts signaling of the hypoxia-inducible (HIF) and transforming growth factor (TGF- β) pathways in placental JEG-3 trophoblast cells via reactive oxygen species. *Tox. & App. Pharmacol.*
- > Adebambo O.A., Ray P.D., Shea D. and Fry R.C (2015). Exposure to environmental mixtures comprising inorganic arsenic and cadmium results in induced expression of metal-responsive and oxidative stress gene biomarkers in JEG-3 placental cells. *Tox. & App. Pharmacol.* 289(3): 534 – 541.
- > Adekunle A.A and Adebambo O.A (2007). "Petroleum Hydrocarbon Utilization by Fungi Isolated from Detarium senegalense Seeds". *J. of American Science*, 3(1): 69 -76.

Presentations

Conference Posters and Oral Presentations

- > Adebambo O.A., Aschner M., Xia Z., Bowman A, Kanthasamy A and Re D. (2020) – Identifying and modeling gene-environment interactions in neurological diseases associated with metal exposure: challenges and recent advances. SOT Annual Meeting 2020 (Session Chair).
- > Adebambo O.A., Martin E.M., Laue H.E, Brennan K, Shea D., Baccarelli A.A and Fry R.C (2018). Investigating the Placental Mitochondrial Genome as a Mediator of

Cadmium-Induced Increased Pre-Eclampsia Risk. NIEHS SRP Annual Meeting, Sacramento, CA (Platform talk).

- > Adebambo O.A et al. (2019) – Investigating the effect of the haploinsufficiency of the SIN3/HDAC corepressor complex member SIN3B in the pathogenesis of a syndromic intellectual disability/developmental delay disorder. Triangle Zebrafish Consortium Symposium, Durham NC.
- > Adebambo O.A et al. (2019) – Haploinsufficiency of the SIN3/HDAC corepressor complex member causes a syndromic intellectual disability/developmental delay disorder. Duke Department of Cell Biology Retreat, Asheville, NC (Flash talk finalist).
- > Adebambo O.A., Martin E.M., Laue H.E, Brennan K, Shea D., Baccarelli A.A and Fry R.C (2017). Investigating the Placental Mitochondrial Genome as a Mediator of Cadmium-Induced Increased Pre-Eclampsia Risk. SOT Annual Meeting 2017, San Antonio, TX.
- > Meakin C.J, Adebambo O.A, Martin E.M and Fry R.C. (2017). Arsenic-Induced CPG Methylation Patterning in Placental JEG-3 Trophoblast Cells Via the Glucocorticoid Receptor: Support for the Transcription Factor Occupancy Theory. SOT Annual Meeting 2017, San Antonio, TX.
- > Martin E.M, Adebambo O.A, McCullough S.D and Fry R.C (2017). Transcription Factor Occupancy as a mechanism of explaining CpG methylation patterning in placental JEG-3 trophoblast cells via the glucocorticoid receptor. 1st Annual Chromatin and Epigenetics Symposium, Chapel Hill, NC
- > Adebambo O.A., Shea D. and Fry R.C (2017). The role of Oxidative Stress and MT1F in the Toxicity of Cadmium & Arsenic Mixtures in Placental JEG-3 cells. SOT Annual Meeting 2017, Baltimore, MD.
- > Adebambo O.A., Shea D. and Fry R.C (2016). Impact of ROS generation on the toxicity of Cadmium in the Placenta. SRP Annual Meeting 2016, Durham, NC
- > Adebambo O.A., Shea D. and Fry R.C (2016). Synergistic Induction of Metal-Responsive and Oxidative Stress Gene Biomarkers in Placental JEG-3 Cells by Environmental Arsenic & Cadmium Mixtures. SETAC Annual Meeting 2016, Orlando, FL.
- > Adebambo O.A., Ray P.D., Shea D. and Fry R.C (2016). Induction of Metal-Responsive and Oxidative Stress Gene Biomarkers in Placental JEG-3 Cells by Arsenic & Cadmium Mixtures from Polluted Waste Sites. SOT Annual Meeting 2016, New Orleans, LA
- > Adebambo O.A., Ray P.D., Shea D. and Fry R.C (2015). Synergistic Induction of Metal-Responsive and Oxidative Stress Gene Biomarkers in Placental JEG-3 Cells by iAs & Cd Mixtures from Hazardous Waste Sites. NIEHS SRP Annual Meeting 2015, San Juan, PR